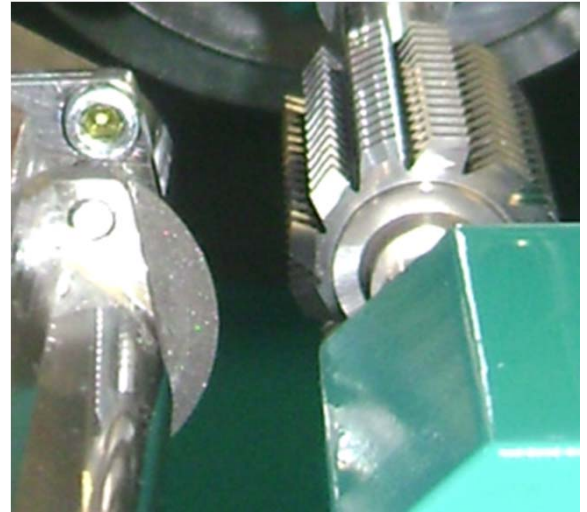


Profiling small module gear hob (HSS)

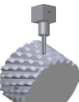

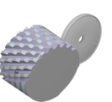

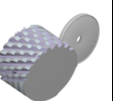




A12-030

Different technologies are used today to grind the profile on HSS gear hobs. The tooth profile can be ground using a CBN or ceramic wheel. For small batches, ceramic wheel is mostly a better solution. Processing time is a bit higher then with CBN wheels, but the costs are lower and the wheel dressing faster and easier.

As smaller the diameter of the tool, as more gashes the workpiece has, to provide long term stability. This requires of course small sized wheels to enable reasonable cam amounts. The given example is a module 0.55 HSS hob with Ø 32mm, 12 straight gashes, 51mm cutting lenght and two threads. The tooth and wheel profiles can be generated based on DIN / ANSI-AGMA standards or customer drawing.



1. Cycletime for Production

Workpiece: Diameter 24 mm Material CARBIDE					
Operations					
Feed rate [mm / min]	2000	150	2500	150	1500
Infeed / pass [mm]		0.025	8x0.025	0.010	2x0.000
Cutting feed [m/s]		30	30	28	28
Used wheels					
Cycle time [min]	1	3	30	2	4
Total cycle time	0 h 40 min				

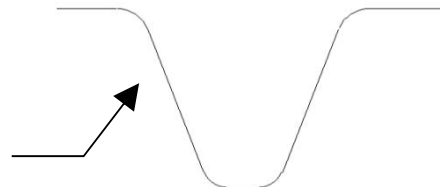
Total removal rate: 0.2mm

The cycle times are indicative. Material to be ground, grinding wheels, coolants can influence the cycle times considerably.

2. Used Grinding Wheels

Ceramic 14A1 Ø40 A120 V100

Wheel profile



3. Machine and Software Requirements

Machines: 6 axes CNC grinder : Gemini GHP

Control: Fanuc 31i

Accessories:

Responsible engineer: SIW, 23.02.2010

Coolant: Synthetic Oil, pressure 6 bar

Software: Quinto 5

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